

# THE MOEDAL COLLABORATION

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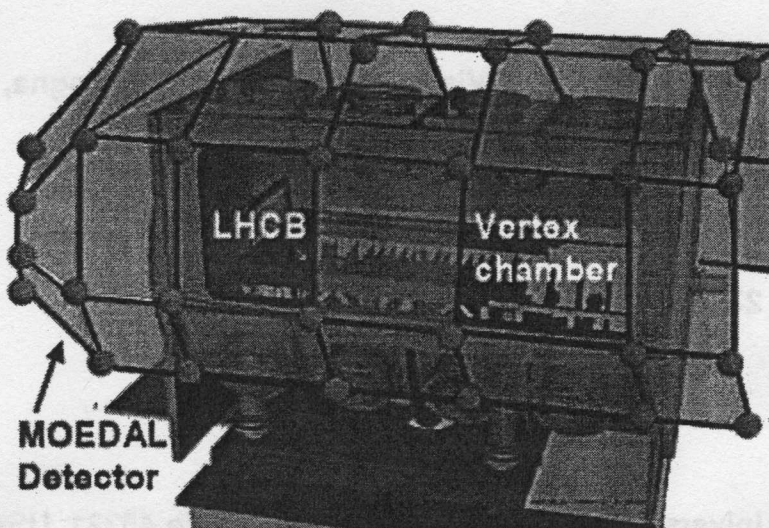
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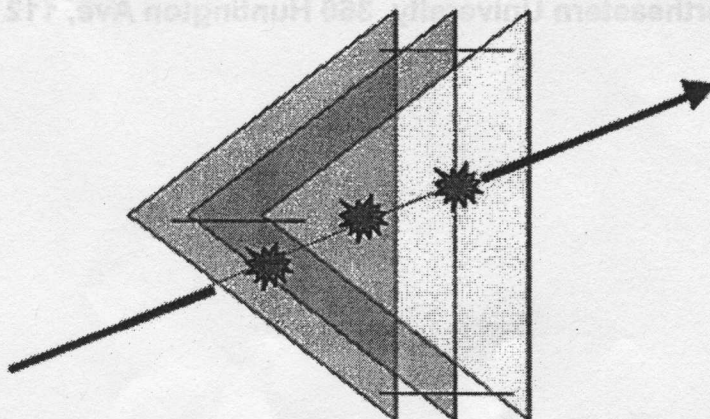
## The MOEDAL Detector

The sensitive elements of the MOEDAL detector, are the Lexan/CR-39 plastic track-etch detector sheets. The detector itself will comprise of a fast assembly/disassembly frame whose facets will hold 3-5 layers of track-etch detector plastic. This frame is designed to surround the LHCb vertex region as depicted in the figure below. The frame covers 50% to 70 % of the solid angle. the final design of the MOEDAL detector depends on the final design of the LHCb vertex region. This is one of the reasons for the "flexible framework" approach. In order to minimize connection between the LHCb vertex detector support structures and the MOEDAL detector it is envisaged that the MOEDAL detector will be supported from the roof of the tunnel in which the LHCb vertex region is placed.



The advantages of plastic track etch detectors are that they are well suited to the precise determination of the  $Z/\beta$  of very highly ionizing detectors and suffer small saturation effects compared to conventional ionization detectors. They can be calibrated effectively and easily with heavy ions and require no services such as power supplies, electronic readout or gas systems. In addition, the sensitivity of plastic track etch detectors to conventionally charged particles is very small, thus conventional backgrounds from primary interaction products are extremely low or non-existent. However, spallation products are a potential source of background.

The signal for a monopole in the MOEDAL detector would be a set of collinear etch-pits traversing the 3 to 5 layers of track-etch plastic. There are no conventional backgrounds for this type of event.



The main backgrounds to the search for highly ionizing particles using the MOEDAL detector are primarily